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Hydro-Electric Power Commission of Ontario

APRIL 1919

HUMPHREY FALLS, Manitoulan Island, near Manitowaning

THE BULLETIN

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Hydro-Electric Power Commission of Ontario

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Editorial

The Triumph of Public Service

THE splendid majority given the Hydro Radial proposition at Hamilton on March 15th is a striking testimony of the basic soundness of the Hydro plan and is a distinct vote of confidence upon the part of one of Canada's largest cities.

Although beset at all turns by insidious corporation propaganda, and hampered by the distorted, untruthful statements of all of the newspapers in Hamilton, except *The Labor News,* the cause of Mr. Plain Citizen won by the substantial majority of 2,737 votes.

The Hydro Radial project is now in a fair way toward realization, and the carping critics will in a few years find themselves classed as would-be obstructors of a great movement toward the eventual advancement of Canada's premier province.

What the Hydro municipalities have accomplished through universal co-operation will inevitably be duplicated in what they will accomplish in the construction and operation of Hydro Radials.

Great as the Hydro project is at the present time, we are upon the threshold of a new era—the future grows greater day by day—*"Dona Naturae Pro Populo Sunt."*

Technical Section

Municipal Pumping Plant at Tavistock

DURING the summer of 1916 Hydro power superseded steam power for domestic pumping. The two steam pumps were retained, however, for fire service, steam being supplied by a milling company near by.

Water is obtained from artesian wells about one-half mile distant and carried in a closed conduit to the pumping station in the village where it enters the pumps at a slight pressure. The motor operated domestic pump forces the water to the mains and to an elevated reservoir adjacent to the pump house. This reservoir has a capacity of 40,000 Imperial gallons and a total height of about 125 feet. The population is about 1,000 and the daily consumption about 24,000 gallons.

The domestic unit is a 50 r.p.m. horizontal double acting 4 by 4 inch triplex pump, connected through a gear and rawhide pinion to a 3 horsepower, 25-cycle, single-phase, 1460 r.p.m. motor, controlled by an automatic pressure type starter, arranged to start the motor when the water pressure is about 45 pounds and to stop the motor when the pressure is 52 pounds, that is, when the tank is full. The pump has a capacity of 72,000 Imperial gallons in 24 hours and operates on an average of 8 hours per 24 hours.

The local superintendent attends to the oiling system and sees that the pump is not operated during the municipality's peak load period.

The cost of pumping per 1000 Imperial gallons is 4½ cents. This figure includes :

(1) Interest at 6 per cent. and depreciation at 7½ per cent. on the investment, which includes the cost of the pumping unit, piping and valves to connect it to the system, cost of installing and cost of electric light wiring and fixtures in pump house.

(2) Cost of electric power to the water department. Class "A" 24-hour unrestricted power is used so that the pump may be operated any time of the day. The power used is estimated at 3 horse power.

(3) Allowance of superintendent's salary apportioned for daily inspection of the pump and making repairs when required.

(4) Maintenance covering replacement of worn parts, packing, oil, etc.

The power is sold to manufacturers for driving electric motors, etc., to commercial and domestic lighting customers and is also used for street lighting, and for the electrically driven pump at the waterworks. The peak load for these different services comes at different times in the day. At certain periods in the day it may happen that all the power will be available for one only of these services. For instance, it may be used largely for power during the working period of the day and later during the evening be practically all available for lighting; also, the pump may be the only service consuming power during the noon hour.

If care is taken to run the electrically operated pump off the municipality's peak, according to the Standard Interpretation of rates, power can be supplied for the operation of this pump at Class "D" rates, i.e., a class discount of 33⅓ per cent. which will be deducted from the power bills as calculated in accordance with Standard Power Rates for the municipality.

In this way, by the co-operation of the Waterworks and Electrical Departments of the municipality, both the waterworks consumers and the electrical consumers will reap a considerable benefit. In this par-

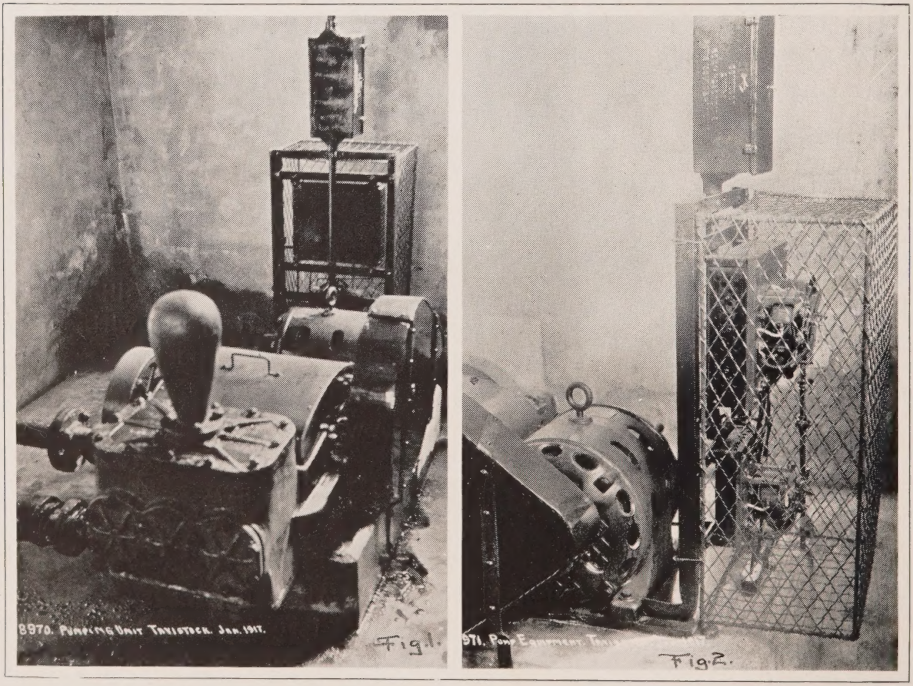


Fig. 1—The Pumping Unit at Tavistock

Fig. 2—Pump Equipment at Tavistock

ticular case the service charge is $36 for a 3 horse power pump motor, the balance of the annual bill of $100 being a consumption charge at Class "A" rate. This might be reduced to $67 if Class "D" (off-peak power) were used, as above.

In the case of Tavistock, the municipality's load curve is flat and it would be necessary to install a time clock and give the pump much more supervision if Class "C" or Class "D" power were used.

The municipality has decided that the estimated saving is not warranted and are continuing the use of Class "A" power.

Previous to the use of Hydro power, pumping by steam per 1,000 gallons cost not less than 6 cents. With the increased price of coal the cost per 1,000 gallons on the same basis would now be at least 7 cents. Hydro power is therefore saving Tavistock 2½ cents per 1,000 galls, or a total annual saving of about $200. The saving of $200 per year invested in a sinking fund at 5½ per cent. would in five years amount to a little more than the capital expenditure on the electric pumping unit installed; in other words, the saving in using Hydro will pay for the electric pumping unit in less than 5 years.

Figure 1 shows the pump with air dome, suction and discharge connections, gear and crank shaft cases, with the motor and automatic starting equipment in the background. This automatic equipment will, when adjusted, stop and start the motor automatically for predetermined elevations of water in the elevated tank. Figure 2 shows the motor, gear case and starting apparatus.

The moving parts and the electrical starting equipment are carefully protected, but are all readily accessible for inspection and maintenance. The wire guard enclosing the motor starting equipment is grounded.

In deciding upon an installation of electric pumps for domestic services, it is usually desirable to purchase an outfit which will supply, during about 16 hours pumping, the maximum daily requirements of the municipality. For this reason, and so as to reduce first cost to a minimum, the original installation at Tavistock was made as small a unit as possible. Should the municipality's requirements increase, a duplicate unit can be purchased much cheaper when industrial conditions become normal.

The equipment was purchased and installed by the Hydro-Electric Power Commission of Ontario in accordance with instructions from the municipality. The equipment is well maintained and is giving excellent satisfaction. Mr. P. E. Steinman is local superintendent and Mr. H. Koerber, Secretary of the Water and Light Commission.

BROCK TOWNSHIP:—Extensions are being made to the rural lines in Brock Township, and when completed service will be given to six additional farms.

Rule J—Page 57—Rules and Regulations

IT is the intention of the Electrical Inspection Department to run short items in THE BULLETIN in cases where the interpretation of Rules seems to have been somewhat misunderstood. The object of these items is to prevent such misunderstandings and the Chief Inspector will welcome any questions which are sent to him, to which replies will be published in THE BULLETIN in time.

Attention is directed to the rule mentioned above and it is pointed out that there never was any regulation adopted by the Commission nor was any recommendation made by the Inspection Department or anyone connected therewith permitting any variation or deviation of any kind from complete compliance therewith.

On page 75 however, rule c, the Commission did adopt a modification to the rule requiring lead cable in connection with inside wiring. This rule, however, is not to be found in the rules covering service work, where the rule which is the subject of this item is placed.

Attention is directed to the fact that rule c does not give open permission to use rubber-covered wire in conduit with high potential work but merely states that rubber-covered conductors may in certain permanently dry locations be used in conduit under special permit in writing from the Commission, and the rule does not mean that any inspector may give this permission and all those who have any desire to deviate from the proper regulation requiring lead sheathed cable should make sure that they get the proper permit in writing before they attempt it.

The Chief Inspector states that he is personally very much averse to running high potential wires in conduit, and not only is he opposed to it, but every regulation which is in print on the North American Continent to-day calls for lead sheathed cable with high potential work. Furthermore, it is doubtful whether any engineer would approve of this class of work otherwise.

In estimating on high potential power installations superintendents, owners of buildings, Hydro managers and others are respectfully and strongly urged by the Inspection Department to consider the whole question before recommending any cheap substitute for proper lead sheathed cable. In the first place the cost of transformers is saved and no reasonable expense should be spared in making installations of this kind perfectly safe.

Review of the Technical Press

Ruhleben—A Final Survey

By W. E. SWALE

RUHLEBEN CAMP is—for Englishmen at least—a thing of the past. Amidst the joys of home-coming, and the blessed charms of a re-discovered civilization, the memories of those four long years are rapidly fading away, and will soon be but a nightmare fancy. Before forgetfulness finally draws the veil over this most painful period of our lives, it may be worth while to record—for the first time uncensored and unrepresses—some of the work achieved by British Engineers at Ruhleben.

Of the "Technical Circle" mention has already been made in the *Review*. This very active body of engineering enthusiasts kept its colors flying until the very end, being dissolved only a few days before our repatriation commenced. Ninety-four meetings had been held in all, and a whole host of technical subjects, ranging from wireless telegraphy to electric heaters, from the metric system to scientific workshop organization, had been exhaustively discussed. A very useful asset to our fund of knowledge was made by the advent of the last Chairman (a director of one of our leading electrical firms), who was captured in the Channel as late as August, 1916, and who was the only one—barring a few recent arrivals from Russia and Australia—who could give us first-hand information about the wonderful work of our colleagues at home. The "Technical Circle," having well fulfilled its object, was disbanded; but many of the members will keep in close touch with one another. The late secretary has a list of the names and addresses of the 120 odd members of the "Circle."

The contemporaries of the T.C.—the local branch of the Marine Engineers' Association—numbering about as many members, were likewise active, and their work has often been mentioned in the *Journal* of the M.E.A. Several chief engineers—some possessing extra-chief certificates—assisted by trained scientists, organized classes to prepare younger colleagues for the B.O.T. examinations, and a number of junior engineers did excellent work in many technical classes. Not only

have the studies pursued in the Camp given them a thorough grounding in the theory of their work, but the B.O.T. officially recognizes the value of this study by dispensing with three months of the necessary period of sea-going experience. A large number of marine engineers further pursued the fascinating hobby of model making.

Apart from such "circles," engineers did a considerable amount of systematic study in the Camp School. A number of professional men and scientists co-operated in running an "Engineering Section," and classes were held, of which many worked progressively upwards from elementary to intermediate and B.Sc. standards. The subjects taught included mathematics, physics and chemistry, theory of electrical machinery, heat engines, efficiency of prime movers, electrical testing, practical surveying, ferro-concrete structures, etc. As time went on we gradually built and equipped biological, physical, and chemical laboratories. A typical piece of work may be cited as an example of the ingenuity of some of our experts. The "Woollen and Worsted Circle" had for many months been weaving little carpets on an automatic loom of original design, built from scrap material found in the camp, and fed by wool which was laboriously collected from the dustbins in the form of old socks, mufflers, etc. Before use the wool was washed and combed, and, where necessary, dyed with dyes made in their own laboratory by dye experts.

It may not be generally known that the work of the School was officially recognized by many educational authorities at home, who, in a commendable spirit of enterprise, allowed public examinations to be held in the camp. At three different examinations some two dozen students passed the Matriculation Examination of the University of London; and five science students, pursuing their studies further, subsequently sat for the Inter. B.Sc. Examination of London. The writer thinks that this case of students passing University examinations whilst interned in an enemy country is unique.

As a branch of the engineering section, practical classes (with actual working machinery) were held in motor car driving and kinema operation. Of less importance, perhaps, from the scientific point of view but certainly of greater general interest, were the many examples of work classed under "Handicrafts." The school had a special section where organized instructions were given in bookbinding, leather and silver work, boat building, and cabinet making. Many beautiful examples of such work will shortly be on view at the Ruhleben Exhibition in London.

But the most amusing examples of resourcefulness, and sometimes almost perverted ingenuity, were to be found among the people—often unorganized and untaught—who "made" things, usually with the meagrest of appliances, simply for the joy of making. The construction of "fat-stoves" offered the first outlet for really inventive genius.

In the early days it was impossible to obtain a hot meal otherwise than by cooking it illicitly in one's own box (a procedure which was, of course, "strengstens verboten," and for that reason, universally adopted). The original "Tommies' Cookers" we received in parcels were quickly modified to burn sardine oil, etc., and from these rude beginnings innumerable "patent" cookers developed. Some of the elaborate cooking ranges we built, with multiple-wick burners and using oil, candle ends, or rancid margarine were really triumphs of the amateur tinsmith's art. Constant fear of raids on cookers—detection resulted in severe punishment—led many inventors to elaborate what one would nowadays call "mystery" designs, in which a complete cooker was disguised as a peaceable "billy-can."

The cooking question solved, the attention of experts was turned to lighting problems. The totally insufficient lighting of most parts of the camp was one of our greatest hardships, and as no representation on our part would induce the authorities to alleviate our situation, we took the law into our own hands. The daylight supply was first tampered with. Men living for months in the lofts, in semi-darkness, grew desperate, and fitted glazed skylights into various roofs—with dire results to the unfortunate man who first got caught. But the precedent had been established, and henceforth "daylight" stealing was indulged in in many dark corners. At night conditions were still worse, and in consequence, as soon as we had extended our "underground" communications to such an extent that contraband, like copper wire and insulating tape, could be smuggled in, wire tapping from the barrack mains became a common procedure. Little transformers—220/8 volts—were designed and built in large numbers, and many men in the lofts soon had their private lighting installations, using the 2- or 4-c.p., 4-volt lamps, which fitted the standard accumulators we were allowed to buy.

Needless to say, these installations were likewise most carefully "camouflaged." The effects of this rapidly increasing "secret" load were of course felt in a general drop of pressure all over the camp, which did not tend to improve the illumination of public space; and when it was discovered that the "perferted" genuis referred to above had evinced itself in the shape of an electric toaster and an electric bed-warmer, public opinion rose loud in protest, and cut off the undesirable consumer.

The theatre and kinema, of course, afforded work for electricians, and ingenious devices, such as illuminating switchboards, "dimmers," etc., were constructed there. But the finest example of perseverance and ingenuity in the use of unpromising material available was shown by the work of electrical and marine engineers in the school compound, foremost among them a man whose name, before the war, was well known to *Review* readers. The first thing to be built was a 50-watt, 220/16-volt transformer, which was

run on the three-wire system, to illuminate the workshops. Several little rotary-converters and D.C. motors were then constructed. For charging up the accumulators used in the laboratories, a simple rotary switch gave excellent results. The climax was reached in a ½-horse power motor-converter, which was designed to be ultimately used in a lighting set for a car. At a science exhibition recently held in the School laboratories, a complete cycle of transformation, demonstrated with home made machines, excited great interest. The A.C. supplied to the camp from Spandau Works at 220 volts and 50 cycles was transformed down to 16 volts and converted, by means of a 2-pole synchronous switch, into a hybrid direct current. This current actuated the motor-converter, which, in its turn, fed a bank of lamps from its A.C. side. Every link in this chain was made in the camp, even down to the end shields of the big motor, which were cast from an alloy of brass and aluminum scrap, and zinc that had been "obtained" from neighboring roofs. Many pounds of meat and biscuit tins, as a matter of fact, were converted into dynamo plates in this department.

Prisoners—like schoolboys—delight in things that are forbidden. Many and wonderful were the methods by which materials and implements necessary for our work were smuggled in. The writer well remembers the pleasure expressed by electrical men on first seeing the *Electrical Review* in camp, just before Christmas, 1915. In response to repeated, carefully worded hints, the first copy had essayed the perilous journey, and had safely arrived—cunningly concealed in the false bottom of a food parcel. For twelve months it continued to arrive in this manner, and only then did we succeed in getting technical papers through the ordinary post. Our thanks are very largely due to the columns of the *Review* for what we could do to keep abreast of matters electrical.

These brief remarks give but a sketch of the activities of engineers in the camp, but they indicate the nature of the work we tried to carry on. The difficulties in the early days were great, for our captors deliberately hampered our attempts at organization for purposes of self-improvement. *All* that we eventually possessed we procured and paid for ourselves. Then indeed, when the work had been done, our captors would, almost daily, bring round visitors and try to impress them with what Germany had done for the welfare of its prisoners. But we knew better. Even we—who lived so long, on that little island, as it seemed, of Ruhleben—cut off from the world, and isolated by the sea of strife and bloodshed that raged around us—learned lessons from the war. Not the least valuable of these is that we gained a fuller appreciation of one of the secrets of our national strength. The versatility and resourcefulness of the Britisher, left to it—himself, is in truth amazing.—*Electrical Review.*

The Cost of Serving Flat Rate Customers

THE new mental attitude toward saving pennies in big operations that the war has gradually developed among utility men has brought some interesting discoveries. The old thought of all of us was to spread the service and educate the public to the idea of central station or gas service. We were willing to sacrifice immediate profits for the broader benefit, and we were right, for those were pioneering days. But with the coming of the war the question of saving became more pressing and important than all consideration of future market stimulation. Utility men began to analyze, and one of the first things they found was that some customers were not worth having. The experience of the Consumers Electric Light and Power Company of New Orleans is a case in point.

Back in 1913, the Consumers Company began a campaign for small customers to be connected through load limiting devices and carried on a flat rate, so much per month. It was believed and proved that much business could be secured this way that otherwise would be quite unobtainable. In all, about 900 such consumers were taken on in the course of this campaign and contracts were made with barber shops, saloons, pressing shops, and residences, all at the rate of 1 cent per connected watt, but after a little experience it was found that this did not pay, when compared with the regular rates. Consequently the rates for places of business were raised from 1½ cents per connected watt for pressing shops to 2 and 2½ cents per watt for saloons.

It was afterwards found, however, that even at these increased rates the company was often losing money, when compared with the retail lighting rates. These losses were not only due to the use of energy purchased by the customer for lighting with Mazda lamps, but were also caused by the temptation that existed for the customer to use an electric fan without the knowledge of the company. The company has had as many as twenty-five cases where the load limiter was practically destroyed through the customer using an electric iron or a toaster on a limiter with a capacity of only 100 watts. In fact, the average class of customer supplied on the flat-rate basis was found to be rather poor, and it was for this reason that there was so much of a tendency by customers to overstep the terms of their agreement with the company.

On the strength of this experience, General Manager W. J. Aicklen, Jr., went to work to make a careful analysis of the actual consumption and resource from these individual customers. From these tests made in different localities, the company found that in a pressing shop paying $1.50 per month for 100 watts connected 34 kw.-hr. was used, which

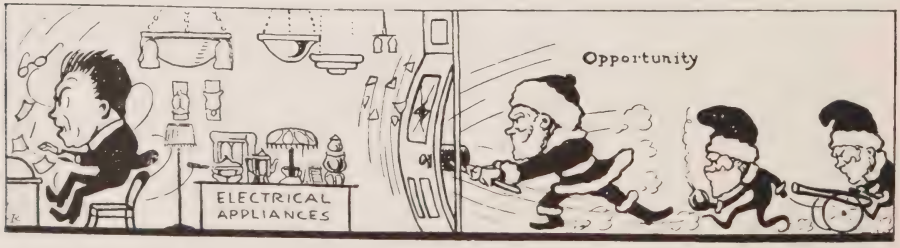
at the regular meter rate would amount to $2.24. At a grocery with a load of 200 watts and paying $2.00 per month it was found that 45 kw.-hr. was used in a month, which would amount to $2.90 per month at the regular rate. For a rooming house which was paying $4.00 per month for 400 watts connected a consumption of 76 kw.-hr. per month was found, which would amount to $4.50 per month at the regular retail rate. At another rooming house that was paying $2.60 per month for 260 watts connected was found a consumption of 49 kw.-hr. per month, which would amount to $3.10 at the regular rate.

It was such findings as these that led the company to decide in 1915 that it would discontinue the installation of load-limiting devices for any new customers and that it would replace them with meters wherever there was an opportunity. For instance, if a customer moved from one address to another the company would refuse to move the limiter and would insist on a regular meter being installed. If the customer went out of business and was succeeded by another, the company refused to let the new customer have the excess indicator, insisting on installing a regular meter. This method reduced the number of load limiters to approximately 500 by the middle of 1918.

"As the load limiter consumption has always been an uncertain quantity," Mr. Aicklen says, "and as it forms a large factor of uncertainty in the calculation of line losses, distribution losses, etc., the consideration of this, in addition to the facts that we had already learned regarding this class of business, caused us to decide to discontinue entirely all load limiters.

"As all these flat-rate contracts are written up on the yearly basis with a self-renewal clause, it was very easy to reclassify them into twelve monthly divisions, and to notify each division monthly of the expiration of their contracts, which were to be replaced on a meter basis or to be discontinued entirely.

"We have found that we have lost practically no business by this method, and even though we may not have so large a revenue on the meter basis, we will feel better in knowing that we are being paid for every kilowatt sent out, and in creating so much larger a field for the exploitation of electrical applicances, as we have, of course, been restricted from selling any appliances to these flat-rate customers in the past.—*The Bulletin*, United Gas & Electric Engineering Company.



More Electrical Devices Were Sold Than in 1917

SALES of electrical appliances by the company during the year ending December 31, made a total considerably in excess of that reached in the preceding twelve-month period. War and the economies it compelled in households directed the attention of buyers in a large degree to the labor saving devices and in consequence irons, washing machines and vacuum cleaners moved out in increased volume. The efficiency of these devices, and the popularity they speedily attain with their users constitute factors in the operation of increasing their sales, for buyers become their verbal advertisers.

The field of these machines—in fact, the field of all electrical appliances, may be considered as an unlimited one. Tabulations undertaken in the last year by statisticians in the East indicate that irons are by far the most extensively distributed of all. The number sold according to these figures is much above 4,000,000. It has been estimated the number in the hands of buyers represents only part of the number of irons that would be required to supply the families throughout the country whose homes are provided with electric service. As noted in another column prices of electrical appliances have not yet fallen materially from the altitudes they reached during the war. It is predicted by some observers that if reductions come the sales will increase.

Of other electrical appliances sold, cooking devices, including percolators, were in largest favor, although the demand for fans was considered satisfactory during their season. There is no doubt that all appliances, including the labor saving kinds, were used more in the aggregate. As to a considerable number of their owners the additional employment made was marked. One strong reason for this traced itself to the extra outlets installed in houses. The need of these in old installations was pushed vigorously as a way of increasing the convenience of electric service. The subject, in fact, got the attention of manufacturers of appliances although their national advertising of it was not lavish.

The appliance sales campaigns for 1919, planned by the Sales Department, propose vigorous work in all of the Divisions. The business prospects for the year are considered excellent.—*Public Service Lumen.*

The Value of Good Show Windows

By V. H. KENNEDY
Commercial Manager, Citizens Gas and Fuel Co., Terre Haute, Ind.

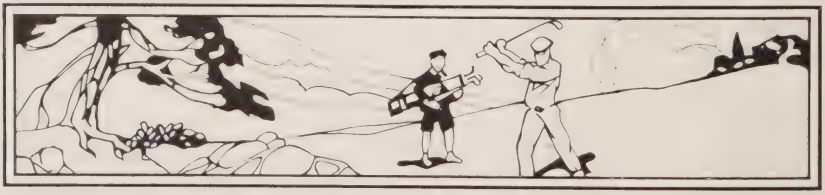
THE value of our show windows as an advertising medium is tremendous. How many of us really realize their possibilities and get the full value out of them? They offer one of our most direct contracts with the public, a means of influencing prospective customers and selling goods that entails practically no additional expense.

The people we are most interested in, the folk who buy our merchandise, are in the main already our customers, and where can we better tell them what we have for them than in our window? An attractive window display which speaks to them just before they enter the office or salesroom, attracts their attention, directs their interest and very often reminds them of something they have wanted to buy, or shows them something new that makes immediate appeal.

It would be estimating low to say that at least 50 per cent. of these customers come to our office every month, either to pay their bills or to buy merchandise. They are the people we are directly interested in. These are the people who know us best and the value of our service.

Also, we have found it most advantageous to have our newspaper advertising and window messages closely associated. In this way we get our prospect coming and going. We make each medium, each message, support the other. We try to keep our window looking neat and attractive, and above all, timely and interesting. Just recently we had a window showing a blind fireplace with a Radiantfire in it. We kept the Radiantfire buring all the time to show how cozy and attractive it would look in the home. We also had several Sunbeam heaters in the window. The week we had this trim the weather was damp and cold. We sold eight Radiantfire and fourteen Sunbeam heaters. Another trim was had on stand lamps and sold ten in the week.

If you have not been taking personal interest in your show window, think it over. I believe you will agree that our windows are proving a very valuable advertising medium. Why shouldn't yours do as much for you?—*The Bulletin*, United Gas and Electric Engineering Corp.



The Trouble With the Boss

Ever sit on a little "the-trouble-with-the-boss is" fest?

Ever do any thinking afterwards?

Ever occur to you that maybe—just in a slight degree—not enough to 'mount to much—b' still a regular factor—that the trouble with the boss—was you?

Ever figure out that the boss might be any different if you were different—just a little?

Ever wonder what in all get out you would do with you if you were not you but the boss? Ever 'sider how you would treat little ol' George W. You in such a tangle?

Have any idea; have you, of what's eatin' the boss to be so much of a human being as he is with a gang of Yous to put money into a pay envelope for—real money, too?

Nex' time y' sit on one of those trouble-with-the-boss directors' sessions 'spose you mix fifty-one per cent. of think with forty-nine per cent. of talk, 'stead of having chemically pure talk—and see if it looks any different.

'T might.

Then again it mightn't.

An' then again it might.

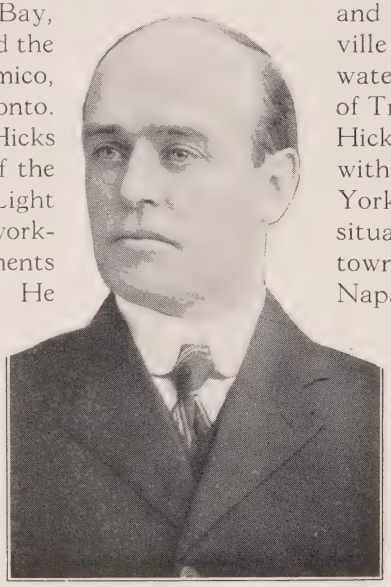
E.P.H. in *Personal Efficiency.*

New Quarters of the Windsor Hydro-Electric System, replacing the former office, which was destroyed by fire

Who's Who in Hydro?

ALFRED T. HICKS, local manager for the Hydro-Electric Power Commission of Ontario at Oshawa, was born December 20, 1878 at Humber Bay, Ontario, and attended the public schools of Mimico, Humber Bay and Toronto.

In 1895 Mr. Hicks entered the employ of the Toronto Electric Light Company, Ltd., and worked in various departments of that organization. He left 1898 and went to New York City, where he was employed on general construction work with an electrical contractor. Mr. Hicks was also employed in Jersey City, N.J.



A. T. HICKS

Returning to Toronto in 1900, Mr. Hicks was engaged by the president of the Trenton Electric and Water Company on the construction of the 10,000-volt line from Trenton to Belleville.

In 1901 he was appointed superintendent of construction and power house operator for the Trenton Electric and Water Company, Trenton and Belleville.

In 1902 Mr. Hicks was appointed manager for the company for Trenton and Belleville, operating electric and gas plants in Belleville and the electric and waterworks departments of Trenton. In 1908 Mr. Hicks prepared a report with Mr. Pierson, of New York City, on the power situation of lake front towns from Port Hope to Napanee, inclusive.

When the Trenton Electric and Water Company was purchased by the Seymour Power Company, in 1910, Mr. Hicks remained in charge of the local office and power house operaiton at Dam No. 2, and in 1917 he moved to Oshawa to take charge of the local electric and gas plants for the Hydro-Electric Power Commission of Ontario.

Mr. Hicks was married in January, 1902 to Helen May, daughter of the late R. A. Barber, of Trenton. Mrs. Hicks died in March, 1916, leaving one daughter, Alma.

Association of Municipal Electrical Engineers

BY the time this copy of THE BULLETIN has reached you, the Executive of the Association will have held its first meeting for the purpose of arranging for the June Convention at Niagara Falls, Ontario. The May number will advise you as to the progress made.

The first year of the Association was a success. The second year is going to overshadow it. Municipally-owned utilities who wish to progress and to become successes in every way, cannot afford to miss availing themselves of the benefits offered by the Association. All should be members and send their delegates to its conventions.

Up to the time of going to press, dues for the year 1919 have been received from the following municipalities, some of which were not on our list of members during 1918; Belleville, Bowmanville, Brampton, Brighton, Calander, Cannington, Chatham, Clinton, Cobourg, Collingwood, Deseronto, Dresden, Dundas, Exeter, Fergus, Galt, Guelph, Kenora, Kitchener, Lindsay, Midland, Millbrook, Mimico, Napanee, Newburg, Newcastle, New Toronto, Niagara Falls, Nipissing, North Bay, Orillia, Orono, Oshawa, Ottawa, Owen Sound, Penetanguishene, Petrolia, Port Credit, Port Hope, Powassan, Preston, Sarnia, Seaforth, St. Thomas, Strathroy, Sudbury, Smith's Falls, Tillsonburg, Toronto, Toronto Township, Trenton, Tweed, Walkerville, Waterford, Waterloo, Welland, Winchester, Windsor.

Notices of the Niagara Falls Convention will be mailed to the members in good standing during the last week of May. If your utility has not sent in its subscription, see that it does so with as little delay as possible, so that it may not be too late.

"Victory"

"Sleep now in Peace, ye Flanders dead,
The cause for which your blood was shed
Has triumphed, and the beasts of 'Might'
As last has bowed its head to 'Right.'
A tortured world, through grief and pain,
Is bathed in freedom's light again.
Fear not, ye have not died in vain
In Flanders' Fields."

"The torch ye threw and which we caught
Has not been held aloft for naught;
The fight that ye so well begun
Is finished now and nobly won.
So 'midst the poppies sleep in Peace
In Flanders' Fields."

(*By Hugh Ritchie in Canadian Military Gazette.*)

Hydro News Items

Prince Edward County

PICTON—The 44,000 volt transmission line from the junction tap near Trenton to Picton has been completed with the exception of the steel towers for the Murray Canal crossing. A temporary pole type structure will be used for crossing the Canal until the opening of navigation.

The outdoor type substation at Picton is practically ready for operation and power will be delivered to the municipality on March 6th.

The three wire two-phase system will be rearranged for 3-phase, 2,200-volt operation. Provision is made for changing the distribution to 4,000 volts when costs of material and labor warrant the change.

BLOOMFIELD—A modern 4,000-volt distribution system has been constructed under the supervision of the Commission. Power will be supplied over a single circuit, 4,000-volt line on No. 2 reinforced aluminum carried on high tension poles from the substation at Wellington.

WELLINGTON—The outdoor type substation at this point is almost completed. Arrangements are being made to supply the municipality with lighting service at 220 volts from the transformer bank erected at the plant of the Canners Seeds, Ltd. The municipality has purchased the 250-volt distribution system formerly owned by the Niles Seed Company, and this will be used temporarily until a modern system can be constructed. Arrangements are being made to install an electrically driven pump unit for street sprinkling and fire protection purposes.

ALEXANDRIA—At request of the municipal officials, the Commission's representative visited the town in regard to obtaining power. It is probable that at some future date a line can be extended from Cornwall to serve this and adjoining municipalities.

Rideau System

PERTH—The line from Smith's Falls to Perth was tested out on February 18th. The substation at Perth was also made alive at the same time.

Power was turned on for continuous service for the first time on February 24th.

The municipal officials are making alterations to local power plants and transmission lines to use them in conjunction with Hydro. The pumping plant is also being altered and new motors are being installed for use on 60-cycle current.

Some local manufacturers are now receiving power from the system.

St. Lawrence System

CORNWALL—The Commission's engineers have recently made inves-

tigations with the object of determining the best manner of arranging the lines and apparatus for serving the Toronto Paper Company with power. This company are installing about 1,200 horse-power connected load.

The Commission's high tension station near Cornwall is almost completed and it is expected that power will be available for the St. Lawrence System from the 110,000-volt lines of the Cedars Rapids Transmission Company.

It is expected that work will be started on the Toronto Paper Company substation building in the near future.

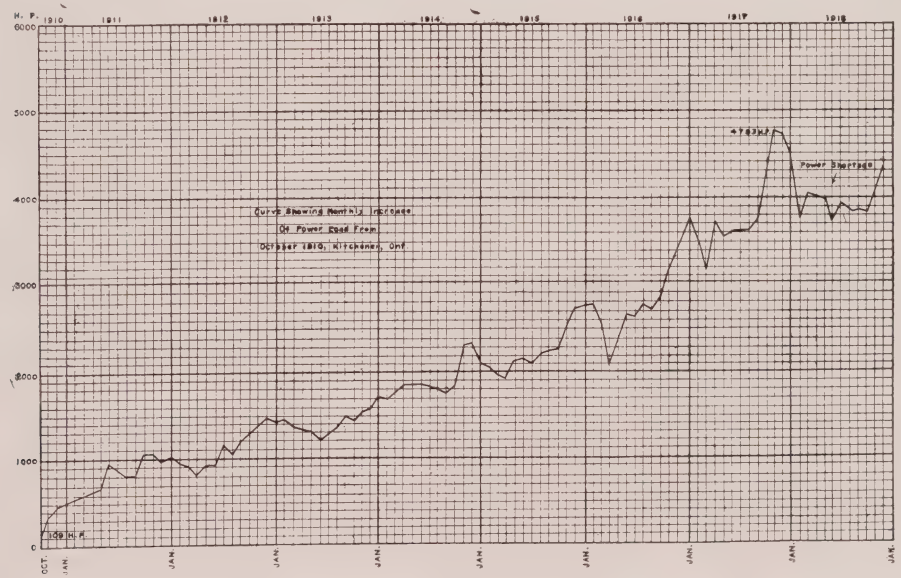
The Cornwall Terminal Company are contemplating taking 200 horse-power from the Commission and rates have been quoted. This company expect to take about 200 horse-power for a large lumber and pulp wood plant.

Niagara District

The municipalities of Niagara Falls and Niagara-on-the-Lake have requested specifications in connection with the installation of electrically driven pumps. Progress is being made with the installation of electrical pumps at Guelph and Windsor. Extensions to the water works, pumping and plant have been arranged, or reports supplied, by the Hydro-Electric Power Commission for a great many municipalities in the Niagara District, including the following:—Aylmer, Brampton, Galt, Georgetown, Goderich, Hespeler, Listowel, London, New Toronto, Niagara Falls, Palmerston, Paris, Petrolia, Ridgetown, Stratford, Tavistock, Tillsonburg and Windsor.

Central Ontario System

The town of Stirling has requested a report on Electric Pumping, along with other plant in connection with fire-fighting equipment.



This chart illustrates the growth of Kitchener's load since 1910

WHY WOMEN LEAVE THE FARM

"I Can Remember"

I CAN remember
THAT THE very first time
I HEARD about pajamas
I THOUGHT it was a fruit
FROM SOUTH America
OR A new kind of a dog
FROM JAPAN
AND THEN one day
I READ in the paper
WHAT THEY were
AND THAT swell persons
WERE ALL wearing them
AND I was young
AND HADN'T much sense
AND WANTED to be swell
AND I bought some
AND THAT night
I PUT them on
AND GOT into bed
WITH THE COAT part
INSIDE OF the pants
AND IT wasn't comfortable
AND I changed them
SO THAT the coat part
WAS HANGING down
AND WENT back to bed
AND HAD a dream
THAT I was sleeping somewhere
WITH MY clothes on
AND I awoke
AND AROSE
AND TOOK them off
AND GOT my nightshirt
AND PUT it on
AND WENT BACK to bed
WITH A clear conscience
AND SLEPT
AND EVER since then
I'VE WORN nightshirts
AND HAVEN'T cared a hang
WHO KNEW it
AND YESTERDAY
AT A haberdashery
I ASKED a young man
TO SHOW me some
AND HE was surprised
AND SHOCKED
AND LEANED over the counter
AND WHISPERED to me
SO THAT no one would hear
AND TOLD me
THAT NOBODY wore them
ANY MORE
THAT THEY wore pajamas
AND HE was so nice
AND SO sorry for me
THAT I had to tell him
THEY WEREN'T for me
AND, ANYWAY
HE DIDN'T have any
AND I went to the basement
OF A department store
AND GOT what I wanted
AND IF the young man
HAPPENS TO read this
I WANT him to know
I'M LIKE the little boy
WHO REFUSED to sleep
IN HIS sister's nightie
AND DECLARED
THAT HE'D sleep raw first
AND THAT'S what I'll do
I'LL SLEEP raw
BEFORE I'LL wear Pajamas
I THANK you.

"Ye Towne Gossip," by "K.C.B."

The Importance of An Attractive Shop Front

IT has only been within the last ten years that the full possibilities of attractive show window displays have been realized.

It is interesting to note that retailers in the smaller towns throughout the Dominion are keeping pace with their city brethern and making the most of the advertising value of their fronts.

Until recently electrical goods displayed in any shape of window have been considered adequately shown, but now the idea of special windows for electrical lines are to be seen in many places.

It is interesting to notice the show windows of the Hydro shops in London, Chatham, Windsor and Owen Sound, where the most up-to-date store front constructions have been installed. They are very good examples of what can be erected, carrying out the "flat front" idea and getting what is known as the all glass effect. This means that the minimum amount of framing is used and

Fig. 1

Fig. 2

the maximum amount of glass is installed. The members all being of solid copper construction. There is no painting or cost of upkeep, and owing to the ductility of this metal, allowance for contraction and expension of glass is taken care of.

Figure 1, shows the usual type of store front which is representative, in plan, of 75% of the fronts in this country.

A much more interesting layout can be placed in the same frontage (see figure 2) which allows for a more varied display and a more inviting entrance.

For a frontage of thirty feet or over, however, the Arcade design is most suitable. It has island show cases with a vestibule passage-way all around, leading to the entrance. These show cases may be three to four feet deep. Vestibule entrances a minimum of five feet and the total depth from side-walk to the store door need not be more than ten feet.

The large show windows can be used for exhibiting stoves and larger lines, and the smaller display spaces for the numerous household labor savers, that are finding a larger market daily.

Of course one can vary these plans in a dozen different ways but one must be careful not to be content with a mere assemblage of building materials, but to get a result that will command the attention of the passer-by and turn him into a customer. It should be kept in mind that neatness of design and attractiveness of construction need not necessarily be expensive, and a little thought regarding the layout and colour scheme can accomplish wonders with moderate priced materials.

Finally it is not a question of what business your front is bringing you, *but what it ought to bring*, and the installation of an up-to-date store front is the best and least expensive method of getting *all* the business you merit.

The Front's the Thing.

Fig. 3

Hydro Demonstration Sales

By J. F. S. MADDEN

OUR special demonstration-sales for this season opened at Picton on March 6th, 7th and 8th, the occasion being the connecting up of Picton to the Hydro System. The Picton Public Utilities are determined to have a full share of Hydro benefits, and in order to demonstrate the many advantages of electrical energy in the home they arranged for a special demonstration of electrical appliances by competent experts. We expect to receive from Mr. William Tait, the Hydro man at Picton, full details of the demonstration which was a complete success in time for our next BULLETIN.

"Can You Beat It?"

Mr. J. E. Cornfoot, the Hydro man at Cannington, has made a record for range sales in 1918, that will surprise many of the larger municipalities. A total of twenty-three ranges varying in size from three to 5 k.w. are now in operation, all connected since January, 1917. Consumers' bills previous to the installation of the ranges varied from 90c. to $2. The same accounts now range between $3.50 to $5 per month. This range load has not affected the peak on the local system. To take care of the range service four additional 10 k.w. transformers have been installed on the system. These transformers also handle eight heaters of from 2 to 3 k.w. capacity.

A successful demonstration sale was held at Smith's Falls, March 10th, 11th and 12th. Mr. H. F. Shearer, the local manager, has contributed an article for the May BULLETIN, in which further details may be expected.

Walter O. Boswell Dead

It is with deep regret that we record here the death of Lieut. Walter O. Boswell. Lieut. Boswell was formerly of the Commission's engineering staff, having been resident inspector of the construction of the Essex Transformer Station near Windsor, and was later in the office at Toronto engaged on station designing and inspection of apparatus in the factory.

Lieut. Boswell enlisted in the Motor Boat Patrol Service of the British Navy, and was stationed at Port Said, Egypt, for over two years. Several of his letters have been published in THE BULLETIN and he was on his way home when taken ill with pneumonia, in London, England, where he died a short time ago. Lieut. Boswell was a son of Mr. J. E. Boswell, of Roxboro street West, Toronto. He was 29 years of age and had three brothers who also saw active service in the war, one of whom was killed in action in France.

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL
LAMPS													
Vacuum													
10 Watt	1	1	2										
15 Watt	5	6	4	11									
25 Watt	442	102	68	109									
40 Watt	733	340	397	440									
60 Watt	452	374	2434	227									
100 Watt	78	94	66	60									
150 Watt													
250 Watt													
Misc.		48											
NITROS													
60 Watt	1												
100 Watt	13	55	63	19									
200 Watt	9	5	6	15									
300 Watt	1		2										
400 Watt	3												
500 Watt	3	1	1										
750 Watt													
1000 Watt				2									
CARBONS	56	40	50	66									
Eradium Bulbs			2	1									
IRONS													
Hydro	104	583	43	43									
Hotpoint	5	5	14										
Northern													
Universal			1	1									
Westinghouse	2		2	4									
Can. Beauty		1	2	1									
National													
TAILOR'S													
Hotpoint		1	1	3									
Misc. Iron Plugs			16	35									
TOASTERS													
Westinghouse T.O.	23	6	2	1									
Hotpoint	7	8	1										
G.E. Porcelain	7	11	9	6									
Universal	17	4	1										
Can. Beauty	6	1	1										

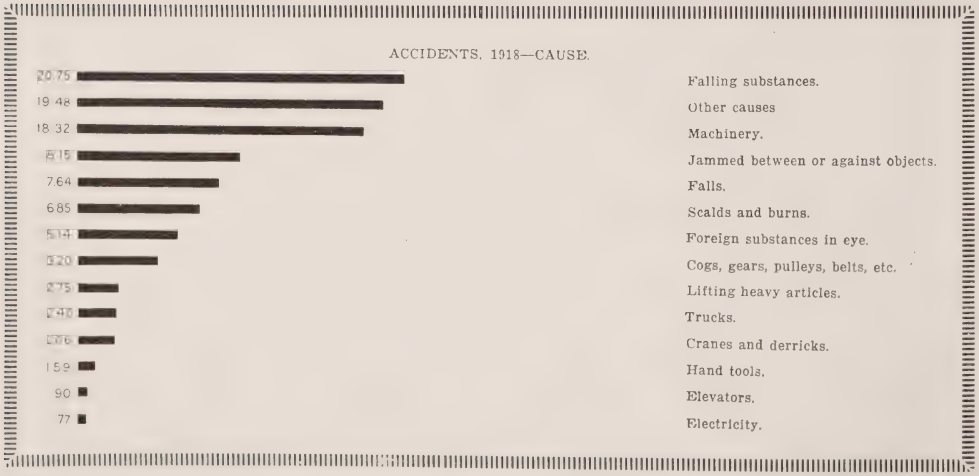
Method of recording appliance sales used by Windsor Hydro-Electric System

Fat Ducks as Legal Tender

A little incident, which occurred last month in Wilkes-Barre, is interesting proof of the versatility of the utility salesman and the fact that no bill now-a-days is uncollectible. Mr. Johns, of the Commercial department, was doing a little collecting the other day and called at the home of an ex-customer who has long been considered a "deadhead." The unpaid bill amounted to $2.95 and no money could be obtained. As Johns turned to leave the house, however, he noticed two fine ducks waddling about in the back yard and an idea came to him.

He asked if they were for sale, and the woman said "Yes." He asked how much she wanted for them and learned that 35 cents a pound was the price. "All right," said Johns, "Catch 'em, tie their feet together and wrap 'em up." This was done after an exciting pursuit and the bill was figured at $3.15, whereupon Johns carefully secured possession of the ducks, wrote out a receipt for $2.95 in full for the company and handed the woman 20 cents in money. Before she could recover from her surprise he was on his way with the ducks in full cry.

Probably the legal authorities would raise many serious questions as to the propriety of this transaction, but from the standpoint of human nature and the art of selling, it was a notable event.



Note the extremely small number of accidents from electrical causes

HYDRO MUNICIPALITIES

NIAGARA SYSTEM

25 Cycles

	Pop.
Acton	1,570
Ailsa Craig	462
Ancaster	400
Ancaster Township	4,577
Aylmer	2,119
Ayr	780
Baden	710
Barton Township	6,061
Beachville	503
Biddulph Township	1,750
Blenheim	1,257
Bolton	727
Bothwell	695
Brampton	4,023
Brantford	26,601
Brantford Township	7,739
Breslau	500
Brigden	400
Burford	700
Burford Township	3,882
Burgessville	300
Caledonia	1,236
Chatham	13,943
Chippewa	707
Clinton	1,981
Comber	800
Dashwood	350
Delaware	350
Dereham Township	3,176
Dorchester	400
Dorchester S. Township	1,457
Drayton	613
Dresden	1,403
Drumbo	400
Dublin	218
Dundas	4,834
Dunnville	3,286
Dutton	840
Elmira	2,065
Elora	1,005
Embro	472
Erin	502
Etobicoke Township	5,822
Exeter	1,504
Fergus	1,679
Flamborough E. Township	2,229
Forest	1,421
Galt	11,920
Georgetown	1,654
Goderich	4,553
Grantham Township	3,133
Granton	300
Guelph	16,022
Hagersville	1,053
Hamilton	104,491
Harriston	1,563
Hensall	717
Hespeler	2,887
Highgate	427
Ingersoll	5,300
Kitchener	19,380
Lambeth	350
Listowel	2,291
London	57,301
London Township	6,024
Louth Township	2,212
Lucan	643
Lynden	662
Markham	909
Merriton	1,670
Milton	1,947
Milverton	929
Mimico	2,004
Mitchell	1,656
Moorefield	335
Mount Brydges	500
New Hamburg	1,398
New Toronto	1,423
Niagara Falls	11,715
Niagara-on-the-Lake	1,318
Norwich	1,093
Norwich N. Township	2,029
Norwich S. Township	1,907
Oil Springs	537
Otterville	500
Palmerston	1,843
Paris	4,437
Petrolia	3,047
Plattsville	550
Point Edward	937
Port Credit	1,179
Port Dalhousie	1,318
Port Stanley	831
Preston	4,949
Princeton	600
Ridgetown	2,080
Rockwood	650
Rodney	626
Sandwich	3,077
Sarnia	12,323
Scarborough Township	5,525
Seaforth	2,075
Simcoe	4,032
Springfield	422
St Catharines	17,917
St. George	600
St. Jacobs	400
St. Mary's	3,960
St. Thomas	17,216
Stamford Township	3,418
Stratford	17,371
Strathroy	2,816
Streetsville	500
Tavistock	974
Thamesford	504
Thamesville	742
Thorndale	250
Tilbury	1,605
Tillsonburg	3,059
Toronto	460,526
Toronto Township	5,008
Townsend Township	3,268
Vaughan Township	4,059
Walkerville	5,349
Wallaceburg	4,107
Waterdown	696
Waterford	1,027
Waterloo	5,091
Waterloo Township	6,538
Watford	1,115
Welland	7,905
West Lorne	708
Wellesley	583
Weston	2,283
Windsor	26,524
Woodbridge	615
Woodstock	10,004
Wyoming	526
Zurich	450
Total	1,011,978

SEVERN SYSTEM

60 Cycles

Alliston	1,237
Barrie	6,866
Beeton	588
Bradford	946
Coldwater	617
Collingwood	7,010
Cookstown	635
Creemore	599
Elmvale	775
Midland	7,109
Orillia	7,448
Penetang	3,672
Port McNichol	500
Stayner	990
Thornton	250
Tottenham	557
Victoria Harbor	1,542
Waubaushene	600
Total	41,941

WASDELL'S SYSTEM

60 Cycles

Beaverton	821
Brechin	215
Cannington	746
Sunderland	570
Woodville	357
Total	2,709

NIPISSING SYSTEM

60 Cycles

Callander	650
Nipissing	400
North Bay	9,651
Powassan	572
Total	11,273

MUSKOKA SYSTEM

60 Cycles

	Pop.
Gravenhurst	1,600
Huntsville	2,135
Total	3,735

EUGENIA SYSTEM

60 Cycles

Alton	700
Artemesia Township	2,396
Arthur	1,003
Chatsworth	286
Chesley	1,860
Dundalk	750
Durham	1,520
Elmwood	500
Flesherton	428
Grand Valley	586
Hanover	3,310
Holstein	285
Horning's Mills	350
Markdale	904
Mount Forest	1,871
Neustadt	470
Orangeville	2,381
Owen Sound	11,819
Shelburne	1,018
Tara	620
Total	33,057

OTTAWA SYSTEM

60 Cycles

Ottawa	100,561

PORT ARTHUR SYSTEM

60 Cycles

Port Arthur	15,224

CENTRAL ONTARIO SYSTEM

60 Cycles

Belleville	12,080
Bowmanville	3,545
Brighton	1,278
Cobourg	4,457
Colborne	811
Deseronto	2,061
Kingston	22,265
Lindsay	7,752
Madoc	1,114
Millbrook	746
Napanee	2,881
Newburgh	444
Newcastle	600
Omemee	446
Orono	700
Oshawa	8,812
Peterboro	19,816
Port Hope	4,486
Stirling	823
Trenton	5,169
Tweed	1,350
Whitby	2,902
Total	104,538

ST. LAWRENCE SYSTEM

60 Cycles

Brockville	9,473
Chesterville	868
Prescott	2,630
Williamsburg	100
Winchester	1,042
Total	14,113

RIDEAU SYSTEM

60 Cycles

Perth	3,358
Smith's Falls	6,115
Total	9,473

ESSEX COUNTY SYSTEM

60 Cycles

Amherstburg	1,990
Canard River	50
Cottam	100
Essex	1,429
Harrow	375
Kingsville	1,633
Leamington	3,604
Total	9,181

THE aim of the Bulletin is to provide municipalities with a source of information regarding the activities of the Commission; to provide a medium through which matters of common interest may be discussed, and to promote a spirit of co-operation between Hydro Municipalities.